

REMARKS

The Office Action dated October 31, 2007 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-2, 4-6, 11, 18-23, 26-27 have been amended to more particularly point out and distinctly claim the subject matter of the invention. Claims 28-29 have been newly added. No new matter has been added.

The Office Action indicated that claims 18-23 have been allowed. Applicants wish to thank the Examiner for the allowance of these claims. However, claims 1-2 and 4-17 are respectfully submitted for reconsideration.

The Office Action rejected claims 1-2, 4-17 and 24-27 under 35 U.S.C. 103(a) as being obvious over US Patent No. 6,295,454 to Havinis et al. (Havinis), in view of US Patent No. 6,014,564 to Donis et al. (Donis). The Office Action took the position that Havinis disclosed all of the features of these claims except the determination of a base station estimate. The Office Action relied on Donis to disclose this feature. Applicants submit that the cited references taken individually or in combination, fail to disclose or suggest all of the features recited in any of the pending claims.

Claim 1, from which claims 2, 4-17, 24 and 25 depend, is directed to a method that includes collecting location information. The method further includes selecting at least one of a plurality of different location methods to provide a location estimate said methods comprising using cell identity information, and determining a first location estimate based on the at least one selected location method. The method also includes

determining a virtual base station estimate using at least some of the collected location information, and providing a second location estimate using one of said different location methods based on the first location estimate and the virtual base station estimate, said second location estimate being a location of a mobile device.

Claim 26 is directed to a system that includes collecting means for collecting location information, selecting means for selecting at least one of a plurality of different location methods to provide a location estimate said methods using cell identity information. The system further includes a location determining means for determining a first location estimate based on the at least one selected location method, and an estimate determining means for determining a virtual base station estimate using one of said different location methods. The system further includes a providing means for providing a second location estimate based on at least one of the first location estimate, and the virtual base station estimate. The second location estimate being an estimate of the location of a mobile device.

Claim 27 is directed to a system that includes a collector configured to collect location information. A selector is configured to select at least one of a plurality of different location methods to provide a location estimate, said methods using cell identity information. A determiner is configured to determine a first location estimate based on the at least one selected location method and to determine a virtual base station estimate. A provider is configured to provide a second location estimate, using one of said different location methods based on the first location estimate and the virtual base station estimate. The second location estimate being an estimate of the location of a mobile device.

As will be discussed below, the combination of Havinis and Donis fails to disclose or suggest all of the elements of the claims, and therefore fails to provide the features discussed above. The rejection is respectfully traversed for at least the following reasons.

As discussed in previous correspondence, Havinis is directed to a telecommunications system and method where a mobile station is able to calculate its own position within a cellular network and reports the calculated location to the requester. The Office Action dated October 31, 2007 admitted that Havinis failed to disclose or suggest at least the feature of “determination of a virtual base station estimate,” and relied on Donis to disclose this feature. Applicants submit that Donis fails to cure the deficiencies of Havinis with respect to independent claims 1 and 26-29.

The Office Action alleged that Donis discloses a dynamic virtual cell area and that the dynamic virtual cell area is equivalent to a virtual base station. Applicants disagree and submit that the virtual cell area in Donis is configured as an area around a mobile subscriber and is designed to be used for predicting where the mobile station is going prior to movement of the mobile station. The purpose of the virtual cell area of Donis is in contrast to the subject matter recited in the present application which provides that the virtual base station estimate may be used itself to provide the location of a mobile device, for example, claim 1, recites, in part, “providing a second location estimate using one of said different location methods based on the first location estimate and the virtual base station estimate, said second location estimate being a location of a mobile device.”

Generally, determining the position of a mobile station is performed by using a type of triangulation algorithm. Triangulation uses signal measurements from three base

stations to estimate the position of a mobile station. If, however, a physical base station is not present, an estimate can be made of a “virtual base station” which may be used in a similar algorithm to locate a mobile station.

Page 84 of the present application discloses that if the serving call information and RX-direction location estimate are available, the co-ordinates of the RX collection location estimates are used as an additional neighbor cell for the RX algorithm. The additional neighbor cell and the RX measurements are referred to as the “virtual base transceiver station” and “virtual RX level” (see top of page 86 of the present application). The virtual measurement may be processed using any of the location methods described.

Donis does not disclose a virtual base station (emphasis added). The concept of a virtual cell area is disclosed on column 3 of Donis as “the area where a mobile can move between different microcells without having to communicate with the mobile switching office” (see column 3, lines 2-5 of Donis). Microcells are simply the immediate area around a mobile subscriber’s current known cell area which indicate probable or possible areas where the mobile subscriber may be located while traveling away from the current cell area. The virtual cell area and the microcell areas are all based on area within range of actual existing base stations. Donis does not provide support for a virtual base station. Because Donis does not support a virtual base station, Donis cannot possibly provide support for a “providing a second location estimate using one of said different location methods based on the first location estimate and the virtual base station estimate, said second location estimate being a location of a mobile device”, as recited, in part, in independent claim 1 and similarly in independent claims 26-29.

Therefore, for at least the reasons stated above, Havinis and Donis, taken individually or in combination, fail to teach all of the subject matter recited in independent claims 1 and 26-29. By virtue of dependency, claims 2, 4-17 and 24-25 are also allowable over Havinis and Donis. Withdrawal of the rejection of claims 1, 2 and 4-27 is kindly requested.

Applicants respectfully submit that each of claims 1, 2, 4-17, and 24-29 is in condition for allowance, in addition to allowed claims 18-23. Accordingly, it is respectfully requested that each of claims 1, 2, and 4-29 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



Kamran Emdadi
Registration No. 58,823

Customer No. 32294
SQUIRE, SANDERS & DEMPSEY LLP
14TH Floor
8000 Towers Crescent Drive
Tysons Corner, Virginia 22182-2700
Telephone: 703-720-7800
Fax: 703-720-7802

KE/cqc

Enclosures: Petition for Extension of Time
Additional Claims Transmittal
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